As with any evaluation, the history is the single most important feature. If obvious injury is excluded, then careful questioning must include the patient's occupation and any daily repetitive tasks. While the wrist may be the focus, the entire upper extremity from the neck to the fingertips must be included in the examination. Even the most trivial and seemingly unrelated activity may give important clues to the nature of the problem. For this reason, several visits to the physician may be necessary.

Several large categories can be excluded by the physical examination. The key is to determine whether the disorder is in the soft tissues or the bony and ligamentous elements. The patient will often refer to a deeper pain when describing maladies of the latter; soft tissue problems are usually palpable. At several points in the examination, it is useful to refer to the uninvolved side when making judgments about range of motion, color, perfusion, position, swelling, and strength.

A few key tricks to localize pain are helpful. Palpation of each wrist bone is mandatory. Grinding the metacarpals and the radius and ulna against the carpals and noting pain or grinding sensations can give clues to degenerative changes. Also, any excessive laxity or instability with crepitus when going through full ranges of motion (compared with the uninvolved side) can give clues to ligamentous tears or disruptions. In addition, it is important to stress each extensor compartment to rule out tendinitis. On the flexor aspect, tests for Phalen's and Tinel's signs should be done to rule out carpal tunnel syndrome.

Confirmatory roentgenograms are the next step in management. They must include all four views—lateral, semipronated oblique, posteroanterior, and scaphoid—including comparative views of the uninvolved side. Accurate communication between the radiologist and the physician must be maintained to avoid overinterpreting the results. In addition, the investigator must critically review the x-ray film because even simple supination and pronation of the forearm will change spatial relationships in all of the articulating surfaces of the carpal bones.

Nerve conduction studies can give clues to compression syndromes masquerading as wrist ailments and should be done early to exclude nerve compression before expensive and lengthy radiologic scans are undertaken.

The next tier of testing frequently begins with bone scanning. Fractures may be evident by increased uptake after only 48 hours. A normal scan, especially if taken a week after injury, should show that a bony injury is absent. Scans can give clues to local or diffuse degenerative disease. If they also reveal ligamentous injury, arthrography or arthroscopy should be done. Computed tomography and magnetic resonance imaging are the next level of study. Magnetic resonance imaging is most useful in diagnosing marrow abnormalities such as avascular necrosis of the lunate, and computed tomography is useful to detect soft tissue and bony masses.

KEVIN F. CIRESI, MD
SUZANNE M. KERLEY, MD
San Francisco, California

REFERENCES

Bond JR, Berquist TH: Radiologic evaluation of hand and wrist motion. Hand Clin 1991; 7:113-123

Chidgey LK: Chronic wrist pain. Orthop Clin North Am 1992; 23:49-64

Koman LA, Poehling GG, Toby EB, Kammire G: Chronic wrist pain: Indications for wrist arthroscopy. Arthroscopy 1990; 6:116-119

Pin PG, Semenkovich JW, Young VL, et al: Role of radionuclide imaging in the evaluation of wrist pain. J Hand Surg 1988; 13:810-814

Pin PG, Young L, Gilula LA, Weeks PM: Wrist pain: A systematic approach to diagnosis. Plast Reconstr Surg 1990; 85:42-46

Cleft Lip and Palate and Craniofacial Operation

THE SURGICAL CORRECTION OF craniofacial deformities has advanced swiftly over the past few decades. The goal remains constant: rehabilitate these patients to a normal appearance.

The pioneering efforts of Paul Tessier of Paris brought the field of craniofacial surgery to the forefront of plastic surgery. His techniques included intracranial access to the orbit and extensive subperiosteal dissection of the soft tissue with wide exposure of the underlying bony structures. This permits direct visualization for extensive bone grafting to either fill or augment the facial skeleton.

Plastic surgeons see numerous facial and skeletal deformities that can be divided into two categories: those associated with a clefting phenomenon and those related to a premature closure of the calvarial sutures. Within the latter group, the skull is unable to conform to the developing brain, leading to compensatory growth and abnormal cranial configurations. These patients may have a constellation of physical findings that identify them as having a recognizable syndrome, such as craniofacial dysostosis (Crouzon's disease) or acrocephalosyndactyly (Apert's syndrome).

Although most clefts are thought to have a multifactorial derivation, the exact influence of a single gene abnormality, mendelian character, or teratogenic influences during pregnancy still warrant investigation. For this reason, a concerted effort must always be made to find any other associated congenital abnormalities and determine whether the cleft is part of a known syndrome. Deformities of the upper extremities are especially common in children with clefts. Families must be counseled regarding the cause and genetics of facial clefting and possible risks of recurrence.

Cleft lip alone or combined with a cleft of the palate has been reported to have a frequency of occurrence of about 1 per 1,000 live births. Men are affected more often than women, with the left side more commonly affected. Women have a higher incidence of isolated cleft palate. Feeding is sometimes difficult, and physicians, nurses, and parents need to develop innovative techniques.

Although several successful techniques have gained widespread acceptance, there is still controversy regarding the optimal timing for repair. In general, lip repair is

carried out when the patient is 10 weeks of age, weighs 4.5 kg (10 lb), and has a hemoglobin level of 100 grams per liter (10 grams per dl). The palate may be closed as early as 6 months to encourage the development of speech and preserve hearing. These children require serial examinations by an interdisciplinary team to detect associated problems and to develop a coordinated treatment plan. In the future we may see even earlier intervention for the correction of these problems using in utero techniques.

SETH R. THALLER, MD, DMD
Sacramento, California

REFERENCES

Hayward R: Craniosynostosis and the paediatrician (Editorial). Arch Dis Child 1990; 65:568

Millard DR Jr, Latham RA: Improved primary surgical and dental treatment of clefts. Plast Reconstr Surg 1990; 86:856-871

Basal Cell Carcinoma

BASAL CELL CARCINOMAS, like the other radiation-induced skin cancers, are increasing in incidence, with an estimated 400,000 new cases diagnosed each year. The typical basal cell carcinoma appears as a shiny, pearl-white lesion that frequently has a central ulceration and surrounding telangiectasia. The borders are usually distinct, except for those of the morpheaform type, which spread diffusely with tentacle-like projections. Basal cell carcinomas virtually never metastasize and are most commonly superficial; however, they can be deeply invasive. These cancers invade local tissues by direct extension and cause both functional and aesthetic deformities. They may involve vital structures, such as the eye, or grow along embryonic fusion planes and invade the sinuses and brain.

Recent retrospective studies have shown that there are many effective methods for the treatment of basal cell carcinoma, with cure rates of greater than 94%. With the goal of obtaining adequate tissue margins with the best functional and aesthetic result, therefore, the current treatment of these skin cancers should be based on their size, depth, and histopathologic characteristics. Small (less than 2 cm) superficial basal cell lesions can be effectively treated with either electrodesiccation and curettage or cryosurgery, with cure rates of 95% and 97%, respectively. These are inexpensive and simple techniques that give good cosmetic results on the extremities and torso. Surgical excision in the relaxed skin tension lines with 0.5-mm margins is similarly effective, with cure rates of 94%, and frequently gives the best cosmetic result, particularly on the face. Mohs' micrographic surgery is recommended for basal cell carcinomas larger than 2 cm or those at higher risk for local recurrence or deep invasion, such as morpheaform tumors or lesions on the nose, ears, canthus, or eyelids. This technique of excision and microscopic examination of all margins has cure rates of 96% to 99% for primary tumors. In addition, Mohs' microsurgery has a similar cure rate for recurrent tumors, which is significantly better than the 60% to 70% cure rates with conventional therapy. Because the Mohs' procedure is time-consuming, more costly, and requires special training and a laboratory, it should be reserved for those difficult or recurrent tumors described earlier. After Mohs' microsurgery or surgical excision, the wound may be closed primarily with skin grafts or with local flaps for the best cosmetic result. If the lesion is extensive and at higher risk for local recurrence, the wound may be skin grafted or allowed to heal by contracture so that recurrences can be easily detected.

Radiation therapy, though not used routinely, is effective in treating basal cell carcinomas (90% to 94% cures) and can be used in old or debilitated patients. Topical 5-fluorouracil application is effective with multicentric superficial lesions. The retinoids and β-carotene have not shown efficacy in treatment or prevention.

Because ultraviolet radiation has a cumulative effect on the skin, the prevention of exposure cannot be overemphasized. It is estimated that the regular use of sunscreens could reduce the incidence of nonmelanoma skin cancers, most of which are basal cell, by 78%.

TOBY R. MELTZER, MD
Portland, Oregon

REFERENCES

Goldberg LH, Rubin MA: Management of basal cell carcinoma—Which option is best? Postgrad Med 1989; 85:57-58, 61-63

Griffiths RW: Skin malignancy and the reconstructive plastic surgeon. Ann Coll Surg Engl 1989; 71:150-158

Proper SA, Rose PT, Fenske NA: Non-melanomatous skin cancer in the elderly: Diagnosis and management. Geriatrics 1990; 45:57-62, 65

Roenigk RK, Roenigk HH: Current surgical management of skin cancer in dermatology. J Dermatol Surg Oncol 1990; 16:136-151

Pressure Sores

PRESSURE SORES continue to be a common, expensive, and preventable complication of long-term immobility or paralysis. They develop in about 3% to 5% of all people admitted to a hospital and 45% of those in long-term-care facilities. More than 70% occur in patients who are 70 years and older. Factors placing patients at risk for ulceration are decreased mobility, activity, and sensory perception and an increase in friction, shear forces, and moisture. Because of the difficulty and expense of treatment, resources should be directed toward prevention. Foremost is the necessity to provide pressure relief in areas supporting body weight, particularly over regions of bony prominence. Limiting the duration of pressure and reducing peak pressures over particularly vulnerable sites can now be accomplished. Dynamic pressure devices can measure individual patterns of pressure variation, allowing customized mattress and cushion therapy. Friction can also be controlled by reducing or relieving pressure.

Ulcers are classified as grade I through IV. Grade I lesions are limited to the epidermis and superficial dermis. Damage from grade II lesions involves the full thickness of skin into adipose tissue. Grade III lesions extend through the skin, subcutaneous tissue, and into underly-